

CLAIMS:

1. A control device for use with dispersion apparatus capable of dispersing a liquid in a fluid to form a mist, the dispersion apparatus including a chamber having a liquid-containing portion and a mist-containing portion,
5 the control device including:
 - a fluid inlet in communication with a fluid outlet, the fluid outlet being such that, in use, it is within the liquid-containing portion of the chamber; and
 - 10 – a mist outlet capable of being, in use, in fluid communication with the mist-containing portion of the chamber;wherein the fluid outlet includes means for controlling the flow of fluid therefrom such that, in use, either the degree of turbulence or the ratio of fluid to liquid in the mist can be controlled.
- 15 2. A control device according to claim 1, wherein the fluid outlet incorporates the means for controlling the flow of fluid.
3. A control device according to claim 2, wherein the fluid outlet is a nozzle
20 that is capable of adjustment to provide a predetermined flowrate and/or pressure of fluid to control the degree of turbulence of the fluid exiting the nozzle or the ratio of fluid to liquid in the mist.
4. A control device according to claim 3, wherein the nozzle is provided at the
25 free end of a probe configured so as to, in use, extend through the mist-containing portion of the chamber into the liquid-containing portion, such that the fluid exits therefrom at or towards the bottom of the chamber.
5. A control device according to any one of claims 1 to 4, including two paths
30 for the flow of fluid, one representing a total by-pass condition and the other representing a total mixing condition.

6. A control device according to claim 5, including a by-pass means that permits the amount of fluid by-passing the chamber to be controlled, thus providing a range of operational conditions between total by-pass and total mixing.
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7. A control device according to claim 6, wherein the by-pass means is adjustable continuously such that an operator is able to easily alter *in situ* the amount of fluid by-passing the chamber.
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8. A control device according to claim 6, wherein the by-pass means may be set at a predetermined position, requiring replacement to alter the amount of fluid by-passing the chamber.
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9. A control device according to any one of claims 5 to 8, wherein a triggering means is provided to move between the total by-pass condition and an operational condition, such that the at-rest position for the triggering means results in the operational condition being engaged.
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10. A control device according to claim 9, wherein the triggering means, when moved away from its at-rest position, in the total by-pass condition prevents the passage of fluid to the fluid outlet but permits the passage of fluid to the mist outlet.
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11. A control device according to claim 9 or claim 10, wherein the triggering means is a plunger capable of external manual manipulation.
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12. A control device for use with dispersion apparatus capable of dispersing a liquid in a fluid to form a mist, the dispersion apparatus including a chamber having a liquid-containing portion and a mist-containing portion, the control device including:

- a fluid inlet in communication with a fluid outlet, the fluid outlet being such that, in use, it is within the liquid-containing portion of the chamber; and
- a mist outlet capable of being, in use, in communication with the mist-containing portion of the chamber;

wherein the fluid outlet includes means for controlling the flow of fluid therefrom such that, in use, the ratio of fluid to liquid in the mist can be controlled.

- 10 13. A control device for use with dispersion apparatus capable of dispersing a liquid in a fluid to form a mist, the dispersion apparatus including a chamber having a liquid-containing portion and a mist-containing portion, the control device including:

- a fluid inlet in communication with a fluid outlet, the fluid outlet being such that, in use, it is within the liquid-containing portion of the chamber;
- a mist outlet capable of being, in use, in communication with the mist-containing portion of the chamber; and
- the mist outlet being in communication, via a by-pass means, with the fluid inlet;

wherein the by-pass means allows control of the ratio of fluid to liquid in the mist

- 25 14. An apparatus for dispersing a liquid in a fluid to form a mist, the apparatus including:

- a chamber having a liquid-containing portion and a mist-containing portion;
- a fluid inlet in communication with a fluid outlet, the fluid outlet being within the liquid-containing portion of the chamber; and
- a mist outlet in communication with the mist-containing portion of the chamber;

wherein the fluid outlet includes means for controlling the flow of fluid therefrom such that, in use, either the degree of turbulence or the ratio of fluid to liquid in the mist can be controlled.

- 5 15. An apparatus according to claim 14, wherein the chamber is provided by a canister.
16. An apparatus according to claim 14 or claim 15, wherein a filter is provided between the liquid-containing portion and the mist-containing portion.
- 10 17. An apparatus according to any one of claims 14 to 16 wherein the fluid outlet incorporates the means for controlling the flow of fluid.
18. An apparatus according to claim 17, wherein the fluid outlet is a nozzle
15 that is capable of adjustment to provide a predetermined flowrate and/or pressure of fluid to control the degree of turbulence of the fluid exiting the nozzle or the ratio of fluid to liquid in the mist.
19. An apparatus according to claim 18 wherein the nozzle is provided at the
20 free end of a probe configured so as to, in use, extend through the mist-containing portion of the chamber into the liquid-containing portion, such that the fluid exits therefrom at or towards the bottom of the chamber.
20. An apparatus according to any one of claims 14 to 19, including two paths
25 for the flow of fluid, one representing a total by-pass condition and the other representing a total mixing condition.
21. An apparatus according to claim 20, including a by-pass means that
30 permits the amount of fluid by-passing the chamber to be controlled, thus providing a range of operational conditions between total by-pass and total mixing.

22. An apparatus according to claim 21, wherein the adjustable by-pass means is adjustable continuously such that an operator is able to *in situ* alter the amount of fluid by-passing the chamber.

5 23. An apparatus according to claim 21, wherein the adjustable by-pass means may be set at a predetermined position, requiring replacement to alter the amount of fluid by-passing the chamber.

10 24. An apparatus according to any one of claims 20 to 23, wherein a triggering means is provided to move between the total by-pass condition and an operational condition, such that the at-rest position for the triggering means results in the operational condition being engaged.

15 25. An apparatus according to claim 24, wherein the triggering means, when moved away from its at-rest position, in the total by-pass condition prevents the passage of fluid to the fluid outlet but permits the passage of fluid to the mist outlet.

20 26. An apparatus according to claim 24 or claim 25, wherein the triggering means is a plunger capable of external manual manipulation.

27. An apparatus for dispersing a liquid in a fluid to form a mist, the apparatus including:

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- a chamber having a liquid-containing portion and a mist-containing portion;
 - a fluid inlet in communication with a fluid outlet, the fluid outlet being within the liquid-containing portion of the chamber; and
 - a mist outlet in communication with the mist-containing portion of the chamber;

30 wherein the fluid outlet includes means for controlling the flow of fluid therefrom such that the ratio of fluid to liquid in the mist can be controlled.

28. An apparatus for dispersing a liquid in a fluid to form a mist, the apparatus including:

- a chamber having a liquid-containing portion and a mist-containing portion;
- 5 - a fluid inlet in communication with a fluid outlet, the fluid outlet being within the liquid-containing portion of the chamber;
- a mist outlet in communication with the mist-containing portion of the chamber, the mist outlet also being in communication, via a by-pass means, with the fluid inlet;

10 wherein the by-pass means allows control of the ratio of fluid to liquid in the mist.

29. A control device for use with dispersion apparatus capable of dispersing a spatter retardant in a gas to form a mist for use as a shielding gas for arc
15 welding, the dispersion apparatus including a chamber having a spatter retardant containing portion and a mist-containing portion, the control device including:

- a gas inlet in communication with a gas outlet, the gas outlet being such that, in use, it is within the spatter retardant containing portion of
20 the chamber; and
- a mist outlet capable of being, in use, in fluid communication with the mist-containing portion of the chamber;

25 wherein the gas outlet includes means for controlling the flow of gas therefrom such that, in use, either the degree of turbulence or the ratio of gas to spatter retardant in the mist can be controlled.

30. A control device according to claim 29, wherein the gas outlet incorporates the means for controlling the flow of gas.

30 31. A control device according to claim 30, wherein the gas outlet is a nozzle that is capable of adjustment to provide a predetermined flowrate and/or

pressure of gas to control the degree of turbulence of the gas exiting the nozzle or the ratio of gas to spatter retardant in the mist.

- 5 32. A control device according to claim 31, wherein the nozzle is provided at the free end of a probe configured so as to, in use, extend through the mist-containing portion of the chamber into the spatter retardant containing portion, such that the gas exits therefrom at or towards the bottom of the chamber.
- 10 33. A control device according to any one of claims 29 to 32, including two paths for the flow of gas, one representing a total by-pass condition and the other representing a total mixing condition.
- 15 34. A control device according to claim 33, including a by-pass means that permits the amount of gas by-passing the chamber to be controlled, thus providing a range of operational conditions between total by-pass and total mixing.
- 20 35. A control device according to claim 34, wherein the by-pass means is adjustable continuously such that an operator is able to easily alter *in situ* the amount of gas by-passing the chamber.
- 25 36. A control device according to claim 34, wherein the by-pass means may be set at a predetermined position, requiring replacement to alter the amount of gas by-passing the chamber.
- 30 37. A control device according to any one of claims 33 to 36, wherein a triggering means is provided to move between the total by-pass condition and an operational condition, such that the at-rest position for the triggering means results in the operational condition being engaged.

38. A control device according to claim 37, wherein the triggering means, when moved away from its at-rest position, in the total by-pass condition prevents the passage of gas to the gas outlet but permits the passage of gas to the mist outlet.

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39. A control device according to claim 37 or claim 38, wherein the triggering means is a plunger capable of external manual manipulation.

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40. A control device for use with dispersion apparatus capable of dispersing a spatter retardant in a gas to form a mist for use as a shielding gas for arc welding, the dispersion apparatus including a chamber having a spatter retardant containing portion and a mist-containing portion, the control device including:

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- a gas inlet in communication with a gas outlet, the fluid outlet being such that, in use, it is within the spatter retardant containing portion of the chamber; and
- a mist outlet capable of being, in use, in communication with the mist-containing portion of the chamber;

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wherein the gas outlet includes means for controlling the flow of gas therefrom such that, in use, the ratio of gas to spatter retardant in the mist can be controlled.

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41. A control device for use with dispersion apparatus capable of dispersing a spatter retardant in a gas to form a mist for use as a shielding gas for arc welding, the dispersion apparatus including a chamber having a spatter retardant containing portion and a mist-containing portion, the control device including:

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- a gas inlet in communication with a gas outlet, the gas outlet being such that, in use, it is within the spatter retardant containing portion of the chamber;
- a mist outlet capable of being, in use, in communication with the mist-containing portion of the chamber; and

- the mist outlet being in communication, via a by-pass means, with the gas inlet;

wherein the by-pass means allows control of the ratio of gas to spatter retardant in the mist.

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42. An apparatus for dispersing a spatter retardant in a gas to form a mist for use as a shielding gas for arc welding, the apparatus including:

- a chamber having a spatter retardant containing portion and a mist-containing portion;
- 10 - a gas inlet in communication with a gas outlet, the gas outlet being within the spatter retardant containing portion of the chamber; and
- a mist outlet in communication with the mist-containing portion of the chamber;

wherein the gas outlet includes means for controlling the flow of gas therefrom such that, in use, either the degree of turbulence or the ratio of gas to spatter retardant in the mist can be controlled.

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43. An apparatus according to claim 42, wherein the chamber is provided by a canister.

44. An apparatus according to claim 42 or claim 43, wherein a filter is provided between the spatter retardant containing portion and the mist-containing portion.

- 25 45. An apparatus according to any one of claims 42 to 44 wherein the gas outlet incorporates the means for controlling the flow of gas.

- 30 46. An apparatus according to claim 45, wherein the gas outlet is a nozzle that is capable of adjustment to provide a predetermined flowrate and/or pressure of gas to control the degree of turbulence of the gas exiting the nozzle or the ratio of gas to spatter retardant in the mist.

- 5 47. An apparatus according to claim 46 wherein the nozzle is provided at the free end of a probe configured so as to, in use, extend through the mist-containing portion of the chamber into the spatter retardant containing portion, such that the gas exits therefrom at or towards the bottom of the chamber.
- 10 48. An apparatus according to any one of claims 42 to 47, including two paths for the flow of gas, one representing a total by-pass condition and the other representing a total mixing condition.
- 15 49. An apparatus according to claim 48, including a by-pass means that permits the amount of gas by-passing the chamber to be controlled, thus providing a range of operational conditions between total by-pass and total mixing.
- 20 50. An apparatus according to claim 49, wherein the adjustable by-pass means is adjustable continuously such that an operator is able to *in situ* alter the amount of gas by-passing the chamber.
- 25 51. An apparatus according to claim 49, wherein the adjustable by-pass means may be set at a predetermined position, requiring replacement to alter the amount of gas by-passing the chamber.
- 30 52. An apparatus according to any one of claims 48 to 51, wherein a triggering means is provided to move between the total by-pass condition and an operational condition, such that the at-rest position for the triggering means results in the operational condition being engaged.
53. An apparatus according to claim 52, wherein the triggering means, when moved away from its at-rest position, in the total by-pass condition prevents the passage of gas to the gas outlet but permits the passage of gas to the mist outlet.

54. An apparatus according to claim 52 or claim 53, wherein the triggering means is a plunger capable of external manual manipulation.

5 55. An apparatus for dispersing a spatter retardant in a gas to form a mist for use as a shielding gas for arc welding, the apparatus including:

- a chamber having a spatter retardant containing portion and a mist-containing portion;
- a gas inlet in communication with a gas outlet, the gas outlet being
10 within the spatter retardant containing portion of the chamber; and
- a mist outlet in communication with the mist-containing portion of the chamber;

wherein the gas outlet includes means for controlling the flow of gas therefrom such that the ratio of gas to spatter retardant in the mist can be
15 controlled.

56. An apparatus for dispersing a spatter retardant in a gas to form a mist for use as a shielding for arc welding, the apparatus including:

- a chamber having a spatter retardant containing portion and a mist-
20 containing portion;
- a gas inlet in communication with a gas outlet, the gas outlet being within the spatter retardant containing portion of the chamber;
- a mist outlet in communication with the mist-containing portion of the chamber, the mist outlet also being in communication, via a by-pass means, with the gas inlet;
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wherein the by-pass means allows control of the ratio of gas to spatter retardant in the mist.

57. A control device according to claim 1, 12, 13, 29, 40 or 41 substantially as
30 herein described in relation to the accompanying drawings.

58. A dispersion apparatus according to claim 14, 27, 28 42, 55 or 56 substantially as herein described in relation to the accompanying drawings.

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